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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/508,685	05/31/2000	ERLAND SORENSEN	9847-0036-6X	7906

7590 05/28/2002  
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EXAMINER

PEREZ, GUILLERMO

ART UNIT	PAPER NUMBER
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2834

DATE MAILED: 05/28/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/508,685

Applicant(s)

SORENSEN ET AL.

Examiner

Guillermo Perez

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 11 March 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 19-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 19-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s) \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

1. Claims 19, 25-29, 35-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trautner et al. (U. S. Pat. 4,106,069) in view of Breitenbach et al. (U. S. Pat. 4,785,138).

Trautner et al. substantially teaches the claimed invention and that the machine is configured to be connected directly to a distribution or transmission network (column 3, lines 19-21 and lines 31-34); and that the brushless excitation system is configured to excite the alternating current rotary electric machine (column 1, lines 6-14) except that it does not show a first layer that exhibits semiconducting properties and surrounds the electric conductor, a solid insulating layer surrounding the first layer, and a second layer that exhibits semiconducting properties and surrounds the insulating layer.

Trautner et al. do not show that the conductor comprises a number of strands, at least some of which are in electric contact with each other. Trautner et al. do not show that each of the first layer, the insulation layer and the second layer is firmly joined to adjacent layers along respective entire contact surfaces. Trautner et al. do not show

that the layers are arranged to adhere to each other even when the electric winding is bent. Trautner et al. do not show that the cable comprises at least one of a metal screen and a sheath.

Breitenbach et al. disclose a first layer (7) that exhibits semiconducting properties and surrounds the electric conductor (5), a solid insulating layer (8) surrounding the first layer (7), and a second layer (9) that exhibits semiconducting properties and surrounds the insulating layer (8). Breitenbach et al. show that the conductor (5) comprises a number of strands (6), at least some of which are in electric contact with each other.

Breitenbach et al. show that each of the first layer (7), the insulation layer (8) and the second layer (9) is firmly joined to adjacent layers along respective entire contact surfaces. Breitenbach et al. show that the layers are arranged to adhere to each other even when the electric winding is bent. Breitenbach et al. show that the cable comprises at least one of a metal screen and a sheath (10). The invention of Breitenbach et al. has the purpose of minimizing thermal aging and avoiding detaching of the layer from the conductor due to bending or axial stress.

It would have been obvious at the time the invention was made to modify the embodiment of Trautner et al. and provide it with the conductor disclosed by Breitenbach et al. for the purpose of minimizing thermal aging and avoiding detaching of the layer from the conductor due to bending or axial stress.

2. Claims 20-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trautner et al. in view of Breitenbach et al. as applied to claim 19 above, and further in view of Elton et al. (U. S. Pat. 5,036,165).

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Trautner et al. and Breitenbach et al. disclose an electric machine as described on item 1 above. However, neither Trautner et al. nor Breitenbach et al. disclose that a potential on the first layer is substantially equal to a potential on the conductor. Neither Trautner et al. nor Breitenbach et al. disclose that the second layer is arranged to form a substantially equipotential surface surrounding the conductor. Neither Trautner et al. nor Breitenbach et al. disclose that the second layer is connected to a source of a predetermined potential. Neither Trautner et al. nor Breitenbach et al. disclose that the predetermined potential is earth potential.

Elton et al. disclose that a potential on the first layer (104) is substantially equal to a potential on the conductor (102). Elton et al. disclose that the second layer (110) is arranged to form a substantially equipotential surface surrounding the conductor (102). Elton et al. disclose that the second layer (110) is connected to a source of a predetermined potential (114). Elton et al. disclose that the predetermined potential is earth potential. The invention of Elton et al. has the purpose of avoiding the development of a corona discharge when an electrical potential exists between the conductor and the region adjacent the exterior surface of the insulator.

It would have been obvious at the time the invention was made to modify the electric machine of Trautner et al. and Breitenbach et al. and provide it with the conductor disclosed by Elton et al. for the purpose of avoiding the development of a corona discharge when an electrical potential exists between the conductor and the region adjacent the exterior surface of the insulator.

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3. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Trautner et al. in view of Breitenbach et al. as applied to claim 19 above, and further in view of Penczynski et al. (U. S. Pat. 3,959,549).

Trautner et al. and Breitenbach et al. disclose an electric machine as described on item 1 above. However, neither Trautner et al. nor Breitenbach et al. disclose that at least two adjacent layers of the electric winding have substantially equally large coefficients of thermal expansion.

Penczynski et al. disclose that at least two adjacent layers (6, 20) of the electric winding have substantially equally large coefficients of thermal expansion (column 4, lines 37-40). The invention of Penczynski et al. has the purpose of improving the mechanical elasticity of the insulation.

It would have been obvious at the time the invention was made to modify the electric machine of Trautner et al. and Breitenbach et al. and provide it with the expansion capabilities disclosed by Penczynski et al. for the purpose of improving the mechanical elasticity of the insulation.

4. Claims 30-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Trautner et al. in view of Breitenbach et al. as applied to claim 28 above, and further in view of Platzer (U. S. Pat. 4,121,148).

Trautner et al. and Breitenbach et al. disclose an electric machine as described on item 1 above. However, neither Trautner et al. nor Breitenbach et al. disclose at least one of a two-way field over-voltage protection mechanism and a discharge circuit

connected across the field winding, and control equipment configured to control current converters and a field over-voltage protection mechanism or discharge circuit.

Neither Trautner et al. nor Breitenbach et al. disclose the control equipment is configured to change a polarity of the current converters for switching a direction of the excitation current from the excitation system, and the control equipment configured to cause the over-voltage protection mechanism to be temporarily connected at transition from one to the other current direction.

Platzer discloses at least one of a two-way field over-voltage protection mechanism and a discharge circuit connected across the field winding, and control equipment configured to control current converters and a field over-voltage protection mechanism or discharge circuit. Platzer discloses that the control equipment is configured to change a polarity of the current converters for switching a direction of the excitation current from the excitation system, and the control equipment configured to cause the over-voltage protection mechanism to be temporarily connected at transition from one to the other current direction. Platzer's invention has the purpose of deriving the current for exciting the field of the exciter from the generator.

It would have been obvious at the time the invention was made to modify the electric machine of Trautner et al. and Breitenbach et al. and provide it with the protection mechanism and control mechanism disclosed by Platzer for the purpose of deriving the current for exciting the field

***Response to Arguments***

Applicant's arguments filed March 11, 2002 have been fully considered but they are not persuasive.

In response to Applicants' remark that the machine in Trautner is not configured to be connected directly to a distribution or transmission network, it must be noted that Trautner discloses the claimed limitations in column 3, lines 19-21 and lines 31-34.

In response to Applicants' remark that if the conductive sheath of Breitenbach is used in a rotating electrical machine the machine would be rendered inoperable, it must be noted that the conductive sheath in Breitenbach is being connected to ground potential through a metallic strand 11 (column 3, lines 42-46). This assures that currents formed in the conductive sheath are directed to the ground and not maintained in the embodiment of the machine. If the conductive sheath in Breitenbach renders a rotating electric machine inoperable, then the linear motor of Breitenbach would also be inoperable since the only difference between a linear motor and a rotary motor is the type of actuation they provide. A linear motor provides a longitudinal displacement force and the rotary motor provides a torque force. Both types of dynamoelectric machines comprise a stator to support the windings.

In response to Applicants' remark that Elton does not teach or suggest that the cable can be used in a rotary electric machine, it must be noted that Elton et al. disclose that dynamoelectric machines are one of the types of electric machines being addressed to avoid the formation of discharge when an electrical potential exists



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between the conductor and the region adjacent the exterior surface of the insulator in column 1, lines 16-35.

In response to Applicants' argument that the resin is a hard material too stiff to be wound, it must be noted that the different electrical embodiments in which that cable will be placed require that the cable be wound, or bend to go around the usual magnetic core on which it is mounted. Also, at the time of manufacturing, the resin can be poured on the conductor, then the cable can be wound on the magnetic core, and then the resin is completely cured to the desired stiffness.

### ***Conclusion***


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Guillermo Perez whose telephone number is (703) 306-5443. The examiner can normally be reached on Monday through Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nestor Ramirez can be reached on (703) 308 1371. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305 3432 for regular communications and (703) 305 3432 for After Final communications.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 0956.

Guillermo Perez  
May 22, 2002



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